SETUP & INSTALLATION MANUAL

FOR

HITACHI ZX210LC-3

HYDRAULIC EXCAVATOR

BY

INTERLUBE
A TIMKEN Brand

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Ports/Bearings Fitting and Lubrication Charts

Primary Divider Valve Section:-

Output Port No.	Feeds Valve No.	SPL08-K Primary Divider Valve
Port 1	1	To SPL10 Divider Valve
Port 2	3	To SPL06 Divider Valve
Port 3	2	To SPL06 Divider Valve
Port 5	4	To SPL06 Divider Valve

Rear Boom Section:-

Output Port No.	Feeds Bearing No.	SPL10 Secondary Divider Valve (Valve 1)
Port 1	7	To Bottom Left Boom Lifter Ram
Port 2	6	To Top Left Boom Lifter Ram
Port 3	8	To Bottom Right Boom Lifter Ram
Port 4	5	To Top Right Boom Lifter Ram
Port 5	9	To Back Slew Ring
Port 6	4	To Right Boom Pivot
Port 7	10	To Front Slew Ring
Port 8	3	To Left Boom Pivot
Port 9	11	To Bottom Dipper Stick Ram

Knuckle Section:-

Output Port No.	Feeds Bearing No.	SPL06 Secondary Divider Valve (Valve 2)
Port 1	14	To Top Dipper Stick Ram
Port 2	13	To Right Dipper Stick Pivot
Port 3	15	To Left Dipper Stick Pivot
Port 6	12	To Top H-frame Ram

Output Port No.	Feeds Bearing No.	SPL06 Secondary Divider Valve (Valve 3)
Port 1	2	To H-Frame Arm Pin
Port 2	1	To Main Bucket Pin

H-Frame Section:-

Output Port No.	Feeds Bearing No.	SPL06 Secondary Divider Valve (Valve 4)
Port 1	17	To Right H-Frame Pivot
Port 2	16	To H-Frame Bucket Pin
Port 3	18	To Bottom H-Frame Ram
Port 5	19	To Left H-Frame Pivot

Note:

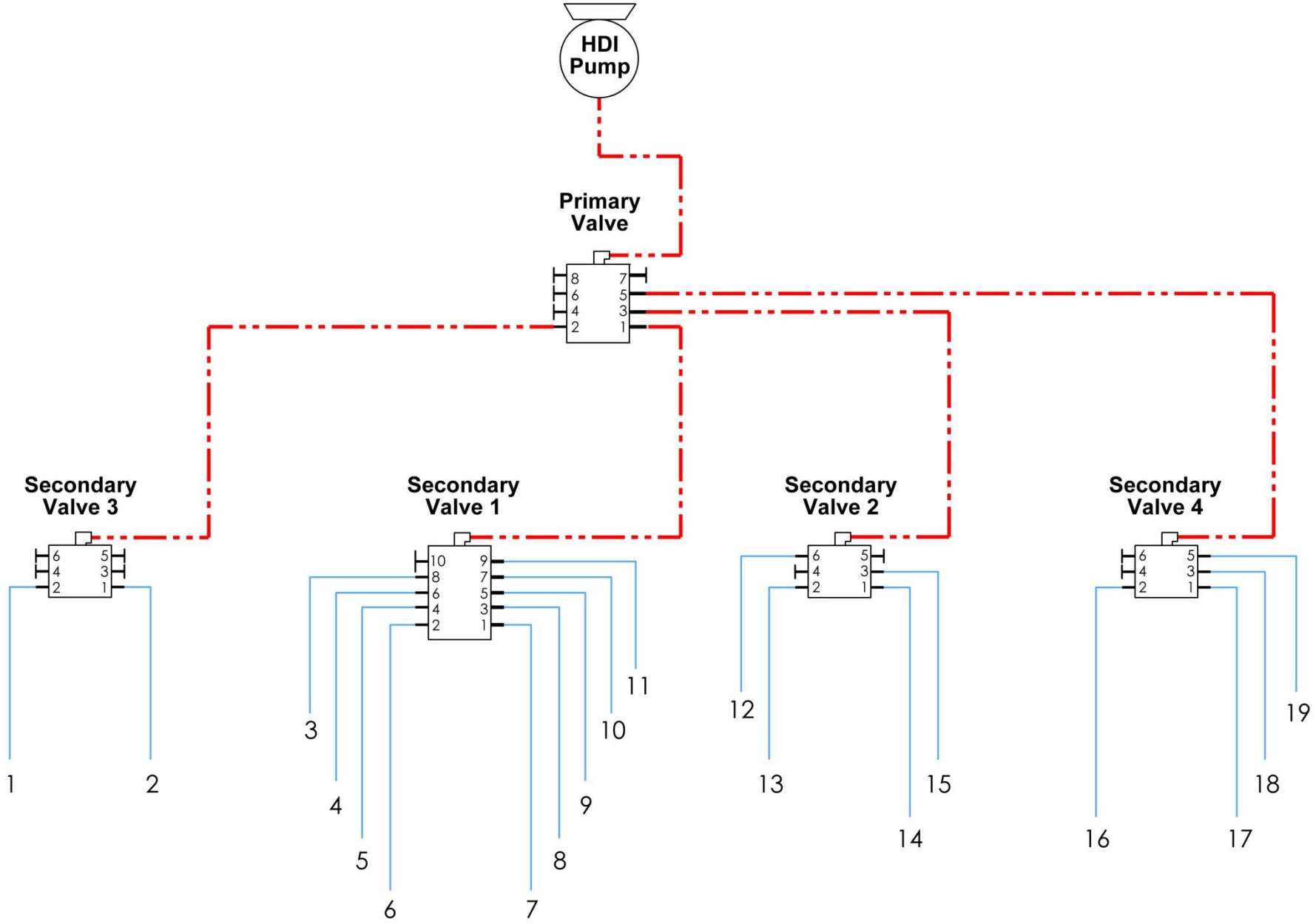
1. Caution:-

   Switch off the vehicle engine and remove the ignition key before starting work on the machine installation. This will prevent accidents occurring on site.

2. Before commencing installation of this lubrication system, it is important that the owner/operator ensures that all the bearings are pre-filled with the correct lubricant.

3. It is important to use recommended grease for the vehicle. DO NOT mix different types of grease together in Pump System. Keep them separate.
   (Acknowledge: Grade 2 grease is recommended for use in HDI Pump)

HDI System Installation Layout



List of Abbreviations

HDI Pump : 24Vdc HDI Pump

PB : SPL08-K Primary Valve

Valve 1 : SPL10 Secondary Valve

Valve 2 : SPL06 Secondary Valve #1

Valve 3 : SPL06 Secondary Valve #2

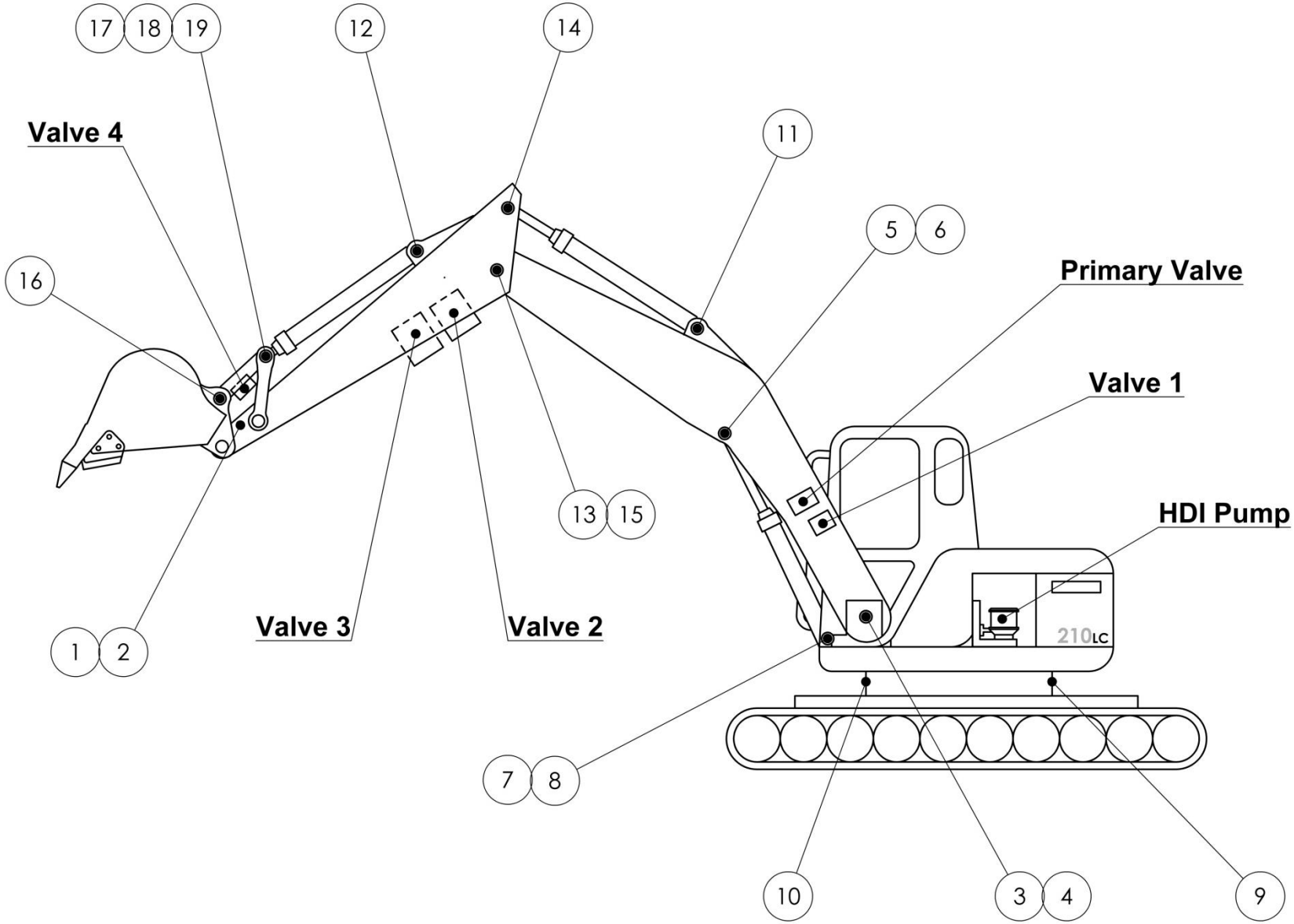
Valve 4 : SPL06 Secondary Valve #3

------- : Output To Secondary Divider Valves

——— : Output Grease Flow Line

: Vehicle Bearing Point

Hitachi ZX210LC-3 Hydraulic Excavator System Layout



System Installation Guide

- Front view of the vehicle where the pump's located at the left hand side of the panel storage between driver cab and engine storage.

- Side view of the vehicle where the pump's store and lock in secure panel storage.

- 24Vdc HDI Pump location being placed at the back of the vehicle.

<table>
<tr>
<td> </td>
<td>Pump system’s resting vertically on the external mounting “L” bracket attach to the left hand side of the ceiling wall.

<u>Note that:-</u>

✓ HDI 3 Litres electric pump mounted on ZX 210 LC3 Logo/HDI bracket. See HDI Set up Information (ISF 294 Issue 12/09 for wiring and programming details)</td>
</tr>
<tr>
<td> </td>
<td>Location of Pump override/Ignition switch (24Vdc Green Push Button) has been placed behind the driver seat.</td>
</tr>
<tr>
<td> </td>
<td>Ignition Switch detail view can be found below the first aid kits storage.

<u>Note that:-</u>

✓ To operate override switch, press button for approximately 5 seconds.

✓ When pump operates, the light will be ON.</td>
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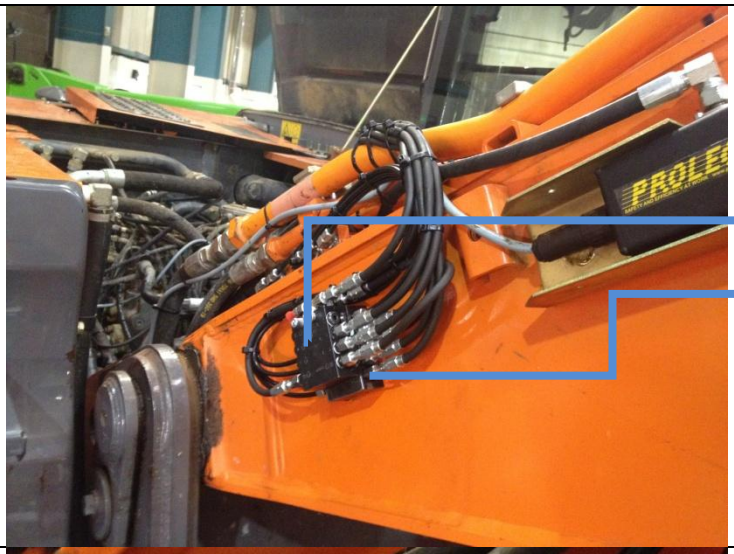
<td>  </td>
<td>

- Mounting positions of:

✓ SPL08-K Primary Valve (Top)
✓ SPL10 Secondary Valve 1 (Bottom)

at Hitachi Boom Arm.

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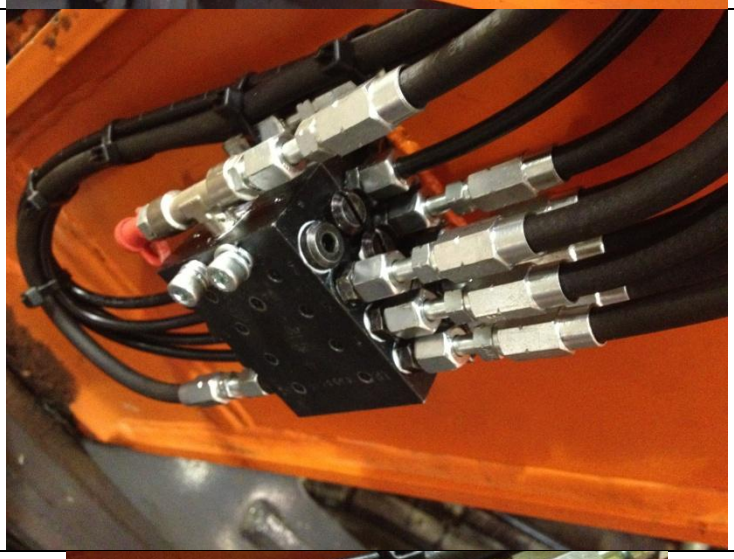
<td>  </td>
<td>

- Detail side angle view of the divider valves.

Note that:-

✓ SPL divider valve lubrication systems.
See SPL Range Brochure for further Information:

(SPL_SB_190112_V1 for Progressive Divider Valves details)

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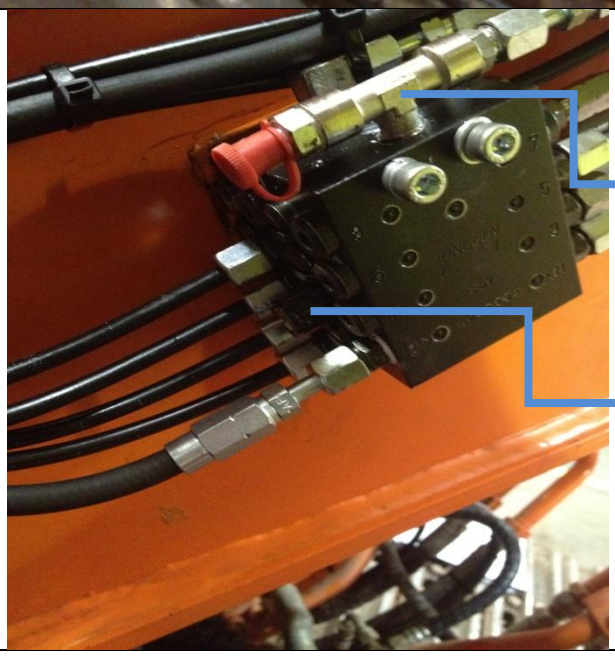
<td>  </td>
<td>

- High Pressure Grease Nipple's manually use to lubricated the system if the pump break down (Optional: Upon Customer Request)

- Indicator pin has been fed to SPL08-K primary valve input port 4

</td>
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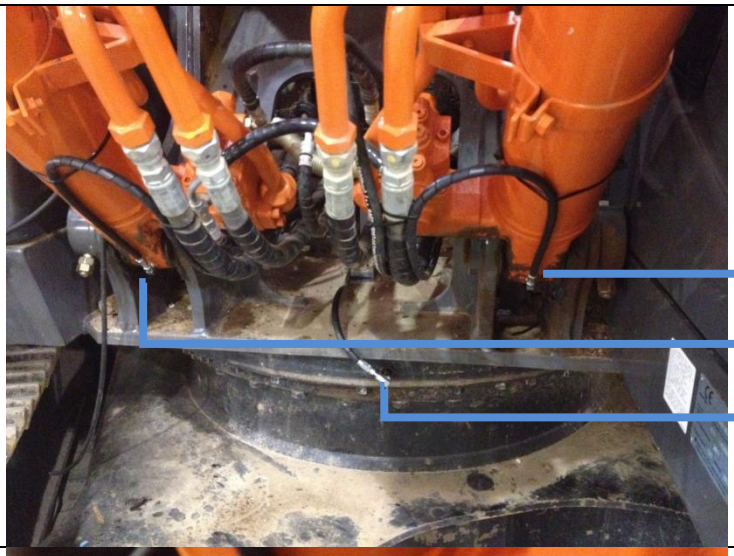
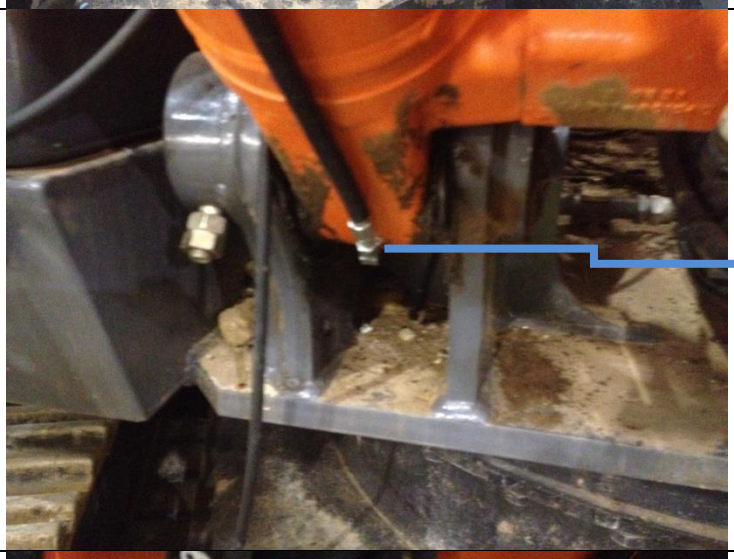
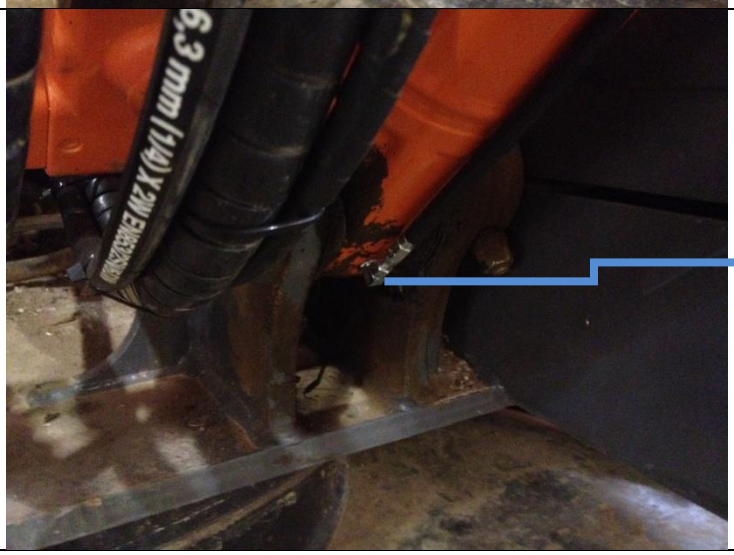


- Lubricant Lubricated from SPL10 Secondary Valve 1:
  - ✓ Bearing points 7
  - ✓ Bearing points 8
  - ✓ Bearing points 10



- Bearing points 8 lubricated From Secondary Valve 1.



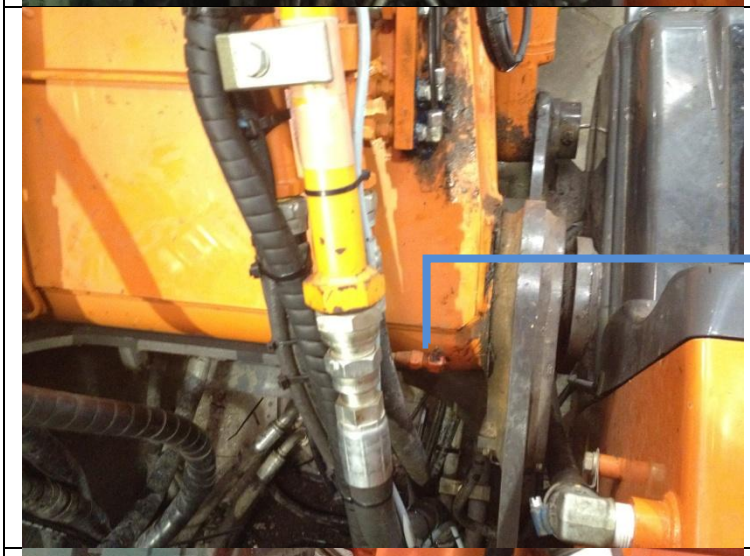
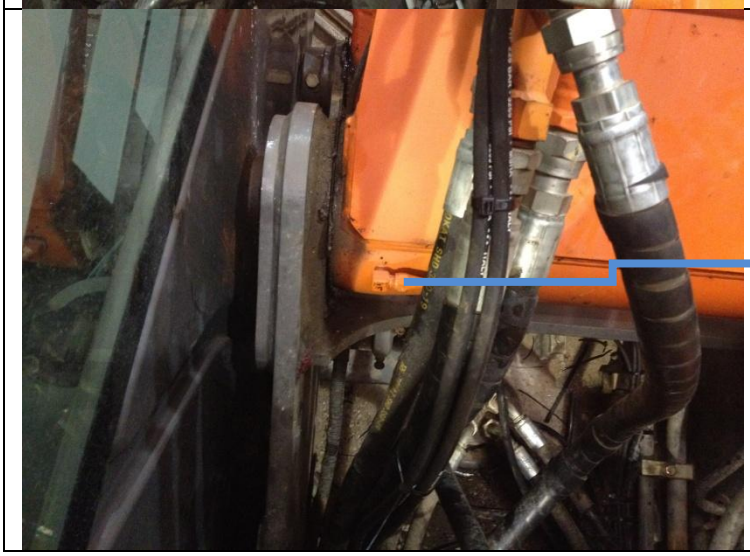
- Bearing points 7 lubricated From Secondary Valve 1.

- Bearing points 10 lubricated From Secondary Valve 1.

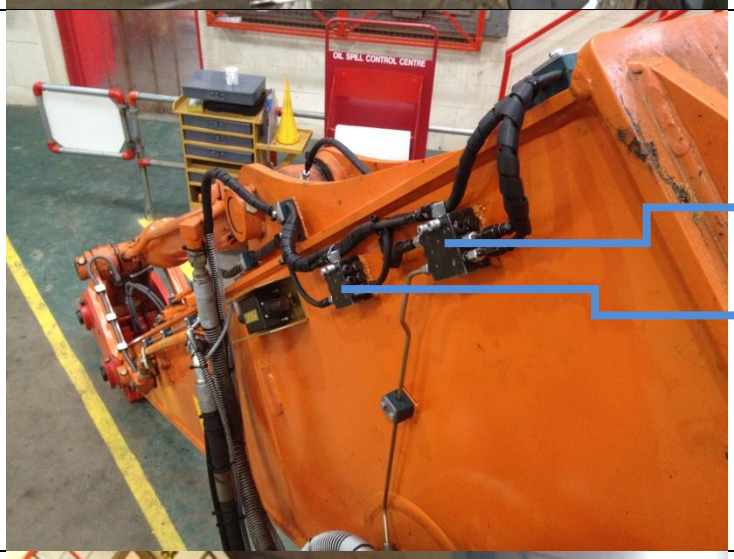
- There are 2 bearing points located at the slew ring:
  - ✓ 1st bearing point is on the front of the vehicle.
  - ✓ 2nd bearing point is on the back of the vehicle as shown on the diagram.

- Bearing points 9 lubricated From Secondary Valve 1.

	• Both bearing points of 5 and 6 from Secondary Valve 1 lubricated.
	• Bearing points 5 lubricated From Secondary Valve 1.
	• Bearing points 6 lubricated From Secondary Valve 1.

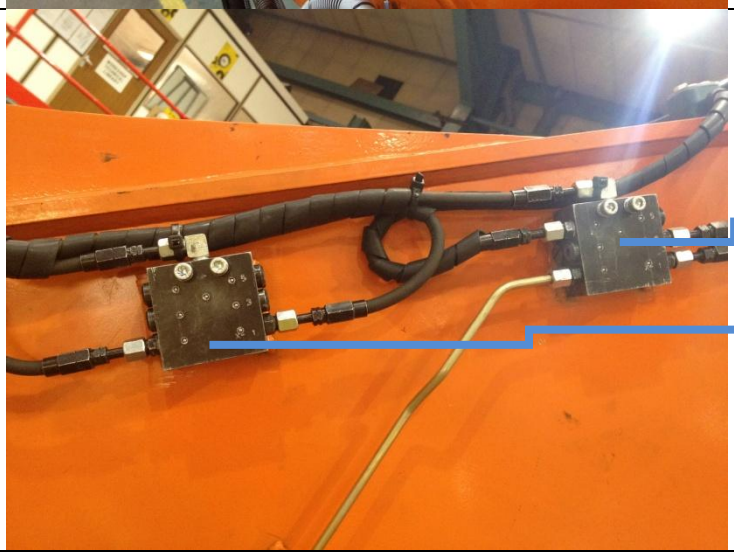
	• Both bearing points of 3 and 4 from Secondary Valve 1 lubricated.
	• Bearing points 4 lubricated From Secondary Valve 1.
	• Bearing points 3 lubricated From Secondary Valve 1.

- Bearing points 11 lubricated From Secondary Valve 1.

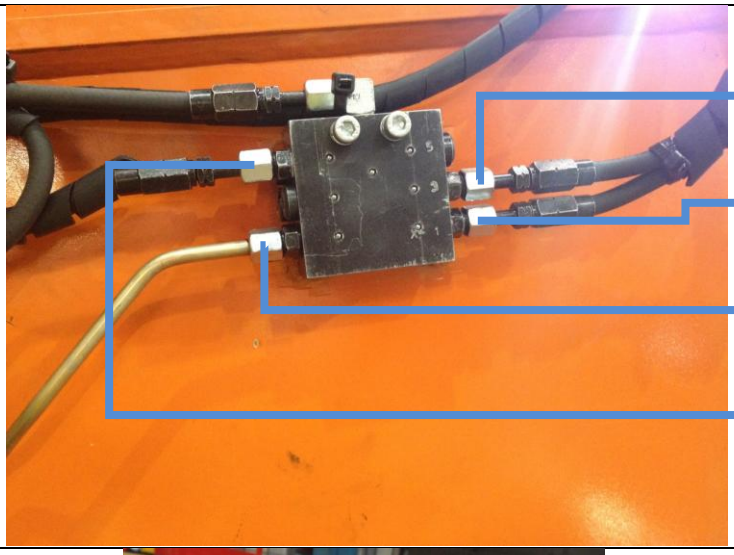


- Mounting positions of:
  - ✓ SPL06 Secondary Valve 2 (Top)
  - ✓ SPL06 Secondary Valve 3 (Bottom)

  at Hitachi Dipper Stick Arm.



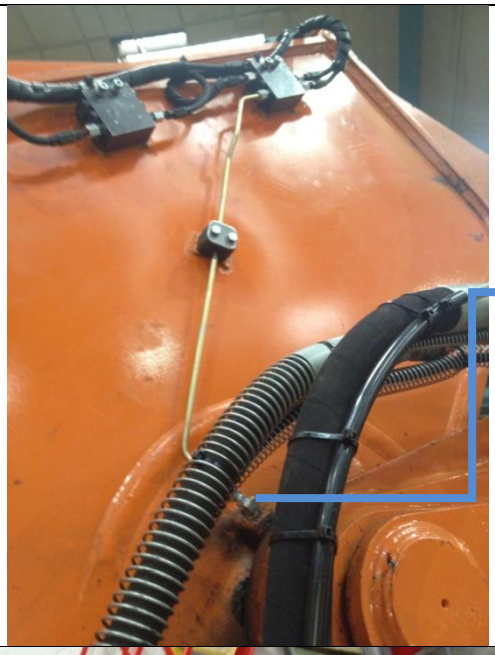
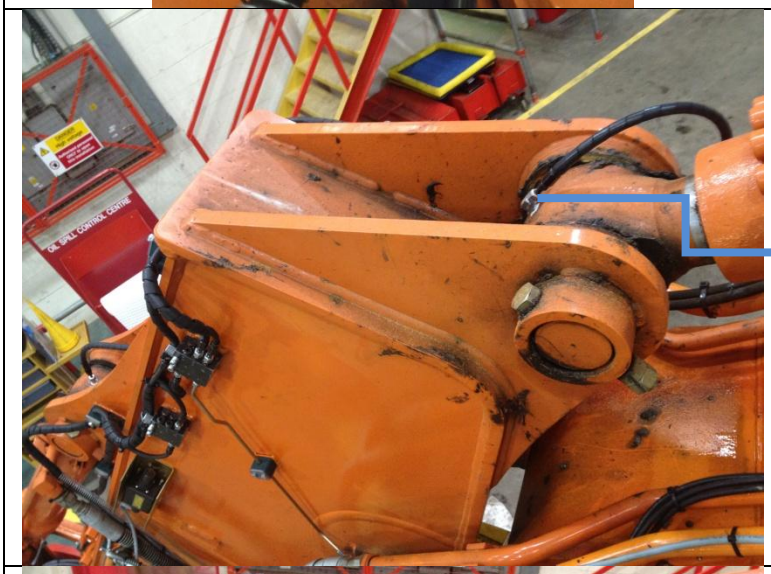
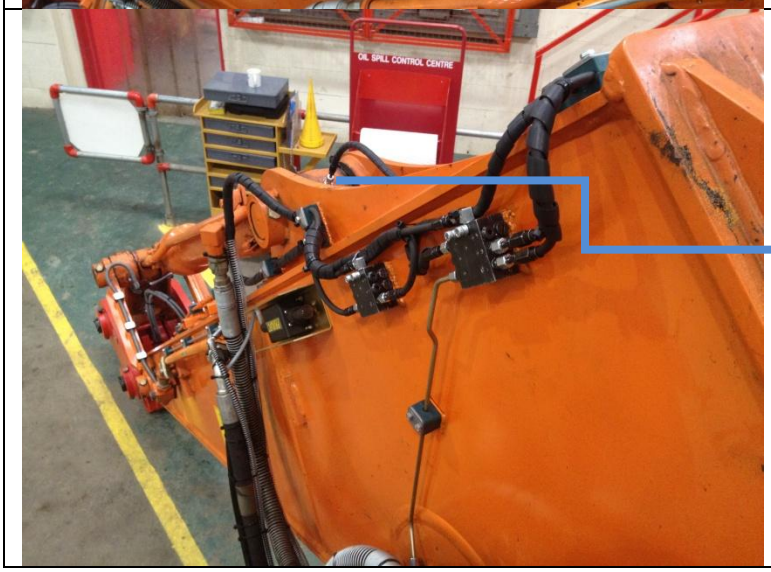
- Detail view of:
  - ✓ SPL06 Secondary Valve 2 (Knuckle)
  - ✓ SPL06 Secondary Valve 3 (Lower Stick)



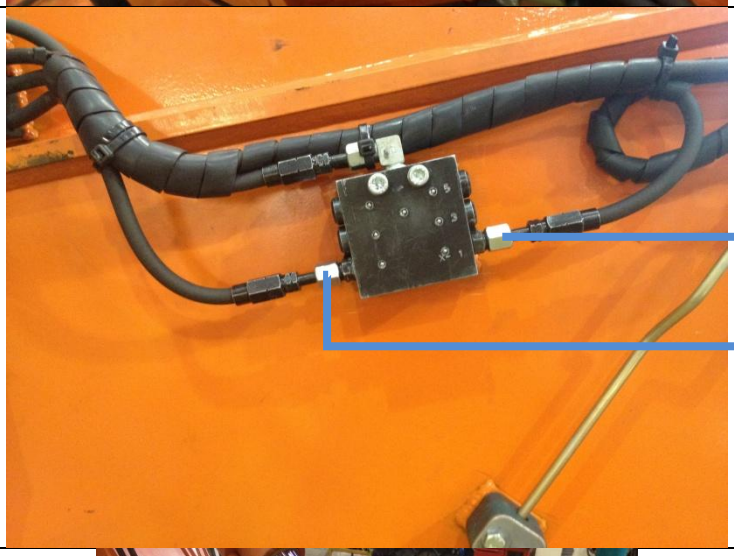
- SPL06 Secondary Valve 2 (Knuckle) :-
  - ✓ Output Port 3 to Bearing Point 15.
  - ✓ Output Port 1 to Bearing Point 14.
  - ✓ Output Port 2 to Bearing Point 13.
  - ✓ Output Port 6 to Bearing Point 12.

- Example of Fixing Tube Installation:-
  - ✓ Tube Support come in handy to hold the tube in position
  - ✓ Protective Helix Plastic will wrap the loose pipe together

- Bearing points 13 lubricated From Secondary Valve 2.

	• Bearing points 15 lubricated From Secondary Valve 2.
	• Bearing points 14 lubricated From Secondary Valve 2.
	• Bearing points 12 lubricated From Secondary Valve 2.

- Detail views:-
  - ✓ Bearing points 12 lubricated From Secondary Valve 2.



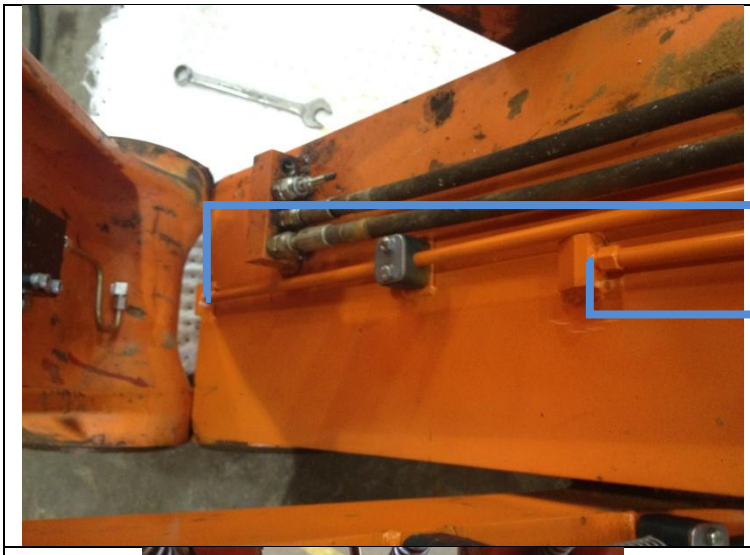
- SPL06 Secondary Valve 3 (Lower Stick) :-
  - ✓ Output Port 1 to Bearing Point 2.
  - ✓ Output Port 2 to Bearing Point 1.

Installation shows the Main Bucket Pin and H-frame Linkage Pin bearings drilled and EXT-1 blocks fitted.

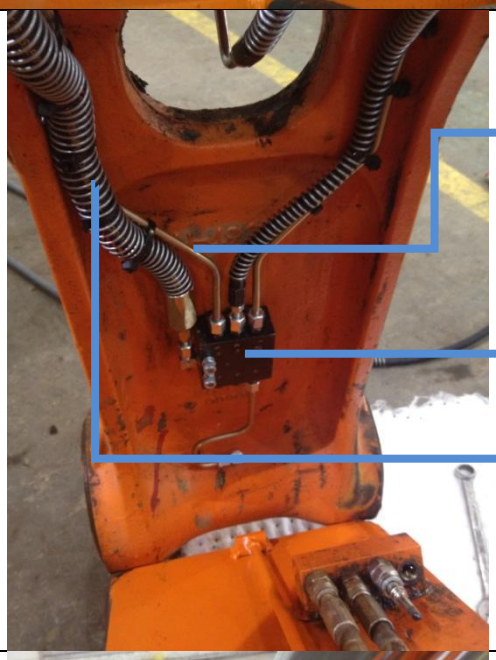
For details on how to do this, see IM 004 manual.

For installation without drilling these bearings, contact Interlube Systems Ltd. for details.

- 10mm thick wall pipes to be fed into Main Bucket Pin/H-frame Linkage Pin bearing points of 1 and 2.



- Bearing points 1 lubricated From Valve 3.
- Bearing points 2 lubricated From Valve 3.

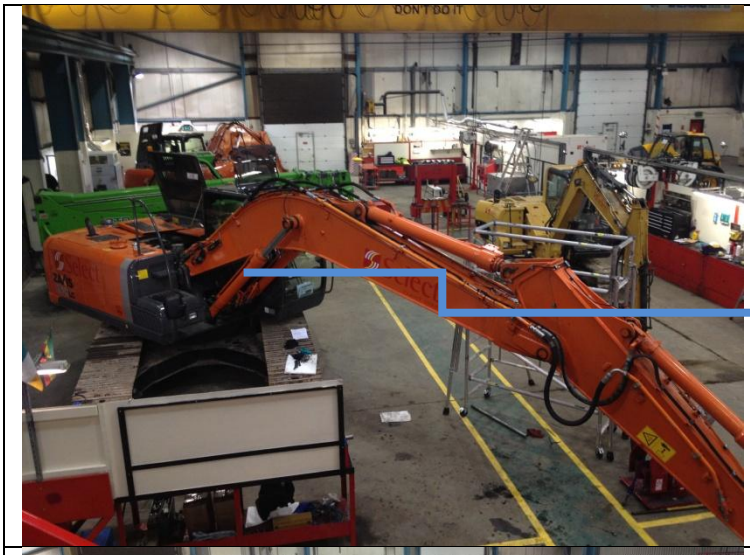


- 6mm Steel Pipe
- Mounting positions of:
  - ✓ SPL06 Secondary Valve 4 (H-Frame)

    At Hitachi H-Frame.
- Steel Helix Cable mainly for rubber pipe protection purposes.

- Bearing point 19 lubricated from Valve 4.
- Bearing point 17 lubricated from Valve 4.
- Bearing point 18 lubricated from Valve 4.
- Bearing point 16 lubricated from Valve 4.

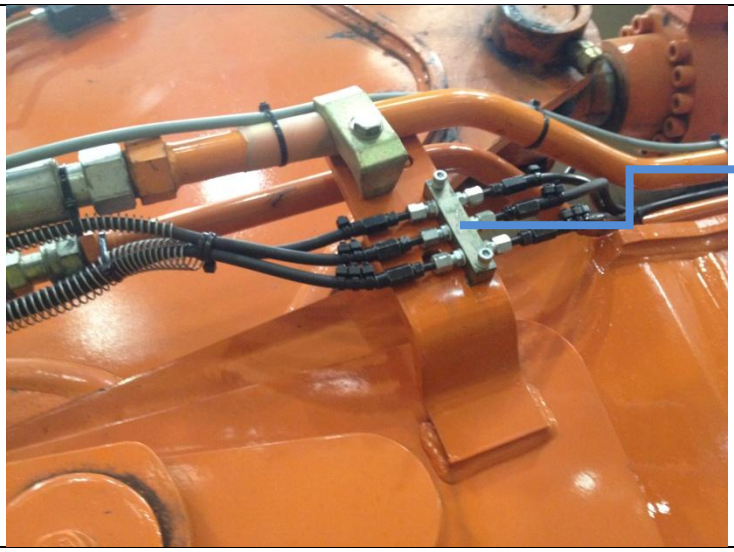
An Overview Vehicle Layout



- Side angle view of:-
  - ✓ Rear Boom

- Side angle view of:-
  - ✓ Boom
  - ✓ Knuckle
  - ✓ Dipper Stick

- Front angle view of:-
  - ✓ H-Frame
  - ✓ Bucket



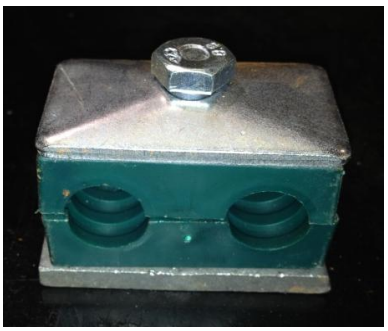
- AB3 pipe splitter will be used for this vehicle installation. It is used to split pipes when the vehicle is under maintenance so the operator/user is able to remove dipper stick from boom without cutting off the pipe linkage.

Note:

1. As a guide on these typical applications, it is advisable that the pump default run time to be set to 5 minutes. Each individual installations/applications may require specific settings. We recommend that new applications be initially monitored to ensure adequate lubrication of all bearings on the system being supplied.

System Installation Accessories

	• AB3, Pipe Splitter
	• EXCT-1, Welding Valve
	• STP-10-3.5, 10mm Thick Wall Steel Pipe

	• Stauff Clamp will be used most of the time during the installation period as a "Tube Support" in order to hold the tube in position.
	• HLX-P-12, 12mm Plastic Helix
	• STP-6-1, 6mm OD Steel Bundy Pipe
	• PC-6-10, 6mm P-Clip • PC-13-10, 13mm P-Clip

Note:

1. Components as shown above, were normally used during installation, there are more component accessories will be included in "Bill of Materials List" on the following page.

Bill of Materials

No.	Part No.	Description	Qty.
1	HDI 6201/M	HDI Pump with 6KG Reservoir (24v)	1
2	LOGO/HDI/BRACK	Bracket	1
3	HDI-PB-24	24V Push Button (Green)	1
4	ELECTRICAL SWA 28RFP	Push Button Connectors (SWA 28RFP)	4
5	FU11 FUSE HOLDER	Splash proof Fuse Holder	1
6	FU2 5AMP	5 Amp Blade Fuse	1
7	HP 1/8 BSP GREASE NIPPLE	HP Grease Nipple (1/8")	1
8	HP TEE 1/8 BSP MMF PTFE TOP	HP Tee : 1/8"bsp m/m/f hp	1
9	SPL08K	SSV8K Divider Valve with Indicator Pin	1
10	SPL06	Interlube Divider Valve 6 port	3
11	SPL10	Divider Valve with 10 outlets	1
12	SPL-BP6	SSV6 Weld Plate	2
13	SPL-BP10	SSV10 Weld Plate	1
14	SPL-CV-LL	6mm OD Check valve (for divider valves/blocks)	23
15	SPL-CN-6-LL	6mm OD Compression Nut for Check valves	23
16	SPL-CO-6-LL	6mm OD Steel Olives (for the SPL Check Valves)	23
17	SPL-CP-10	SPL Divider Valve Blanking Plugs	13
18	CF6-1-1/8	6mm OD x 1/8" BSP(M) Standard Connector	11
19	CF6-2-1/8	6mm OD x 1/8" BSP (M) Elbow	18
20	CFU-6-6	6mm OD x 6mm OD Comp	1
21	CFU-10-10	10mm OD x 10mm OD	2
22	CFU-6-10	10mm x 6mm Standard Connector	4
23	ADP-1-1/8F-1/4	Adaptor	5
24	ADP-3-1/8F-1/8	45 Degree Adaptor	2
25	ADP-2-1/8F-1/8	90 Degree Adaptor	1
26	EXT-1/8-1	1/8" BSP- M x F Short Extension (23mm)	3
27	EXT-1/8-2	1/8" BSP M x F Medium Extension (35mm)	2
28	EXT-1/8-3	1/8" BSP Long Ext (50mm)	1
29	TML-8.6-FE	HP Sleeve (8.6mm Pipe)	38
30	TML-8.6-ST	HP Stud (8.6mm Pipe)	37

31	TML-8.6-90L	HP Stud 90 Deg (Long)	1
32	TML-8.6-2.3F	HP Hose 8.6mm OD (grease filled)	100
33	TSL-6.0-1.5F	6mm OD Nylon Pipe (Grease Filled)	25
34	R2T-1/4-FE	Sleeve (R2T)	2
35	R2T-1/4-ST	Stud (R2T)	2
36	R2T-1-4	R2T Braided Hose	5
37	TW-S	Cable Ties Small	200
38	TW-M	Cable Ties Medium	100
39	TW-L	Cable Ties Large	2
40	HLX-P-12	Plastic Helix (12mm)- 25m coil	50
41	HLX-S-10	Steel Helix (small)	5
42	HLX-S-20	Steel Helix (Medium)	5
43	EXCT 1	Welding block - 90 degree 1/8" bsp	2
44	AB3	3 Way Anchor block 1/8" BSP	1
45	STP-6-1	6mm OD Steel Bundy Pipe	6
46	STP-10-2	Steel Pipe : 10mm OD x 2mm	2
47	STP-10-3.5	Thick wall Steel Tube	4
48	SC-9.5-S	Stauff Clamp 9.5mm Single	12
49	SC-9.5-D	Stauff Clamp 9.5mm Double	9
50	SC-16-S	Stauff Clamp 16mm Single	3
51	QF-G400	Quick fill Gun (Hand operated)	1
52	QF-GAS	Standard Quick Fill connector (Straight) for the HDI Pump	1

Components Layout Description